

	Frequency of Failures
In 2005	0.000
In 2006	0.000
In 2007	0.000
In 2008	0.000
In 2009	0.000
In 2010	0.000
In 2011	0.000
In 2012	0.000
In 2013	0.000
In 2014	0.000

Mann-Kendall Analysis --

Table 11.240. End of Year

	MK Analysis Result	MK Metrics (S-Values)
In 2009	Not Increasing	0
In 2010	Not Increasing	0
In 2011	Not Increasing	0
In 2012	Not Increasing	0
In 2013	Not Increasing	0
In 2014	Not Increasing	0

These metrics indicates that this performance measure is not changing in a statistically significant way.

ak. For **equipment malfunctions due to failing valves** on the **Distribution Valves** section, PEOPLES GAS will:

- Performance Measure --

track the frequency of these failures.

Data for this performance measure are NOT entered into SHRIMP in the threat assessment interviews.

No Data Found.

- Tracking Frequency of Failures (PMMETRIC)

Your Data --

Table 11.241. End of Year

	Frequency of Failures
In 2005	0.000
In 2006	0.000
In 2007	0.000
In 2008	0.000
In 2009	0.000
In 2010	0.000
In 2011	0.000
In 2012	0.000
In 2013	0.000
In 2014	0.000

Mann-Kendall Analysis --

Table 11.242. End of Year

	MK Analysis Result	MK Metrics (S-Values)
In 2009	Not Increasing	0
In 2010	Not Increasing	0
In 2011	Not Increasing	0
In 2012	Not Increasing	0
In 2013	Not Increasing	0
In 2014	Not Increasing	0

These metrics indicates that this performance measure is not changing in a statistically significant way.

al. For **equipment malfunctions due to failing valves** on the **Service Valves** section, PEOPLES GAS will:

- Performance Measure --

track the frequency of these failures.

Data for this performance measure are NOT entered into SHRIMP in the threat assessment interviews.

No Data Found.

- Tracking Frequency of Failures (PMMETRIC)

Your Data --

Table 11.243. End of Year

	Frequency of Failures
In 2005	0.000
In 2006	0.000
In 2007	0.000
In 2008	0.000
In 2009	0.000
In 2010	0.000
In 2011	0.000
In 2012	0.000
In 2013	0.000
In 2014	0.000

Mann-Kendall Analysis --

Table 11.244. End of Year

	MK Analysis Result	MK Metrics (S-Values)
In 2009	Not Increasing	0
In 2010	Not Increasing	0
In 2011	Not Increasing	0
In 2012	Not Increasing	0
In 2013	Not Increasing	0
In 2014	Not Increasing	0

These metrics indicates that this performance measure is not changing in a statistically significant way.

am. For **other threats** on the **Other Outside Force - Occupant Use** section, PEOPLES GAS will:

- Performance Measure --

track the frequency of these failures.

Data for this performance measure are NOT entered into SHRIMP in the threat assessment interviews.

No Data Found.

- Tracking Frequency of Failures (PMMETRIC)

Your Data --

Table 11.245. End of Year

	Frequency of Failures
In 2005	0.000
In 2006	0.000
In 2007	0.000
In 2008	0.000
In 2009	0.000
In 2010	0.000
In 2011	0.000
In 2012	0.000
In 2013	0.000
In 2014	0.000

Mann-Kendall Analysis --

Table 11.246. End of Year

	MK Analysis Result	MK Metrics (S-Values)
In 2009	Not Increasing	0
In 2010	Not Increasing	0
In 2011	Not Increasing	0
In 2012	Not Increasing	0
In 2013	Not Increasing	0
In 2014	Not Increasing	0

These metrics indicates that this performance measure is not changing in a statistically significant way.

11.6. THREAT, RISK RANK, ADDITIONAL ACTIONS AND PERFORMANCE MEASURES ORGANIZED BY THREAT-SECTION

11.6.1. Overview

Consolidated Report of Risk Based Information.

This section takes the threat assessment, risk ranking, additional action and performance measure information from chapters 4-7 and reorganizes that information for each threat-section. The information is identical to what is found in those chapters. Some users may find it easier to review the Plan when organized by threat-section.

11.6.2. PEOPLES GAS Section Risk Ranking (Consolidated)

a. **Section: City of Chicago, Water** portion of PEOPLES GAS portion of PEOPLES GAS

Threat: Excavation Damage -> Third Party Damages -> Third Party Damages

Description: Chicago Water Dept

Threat Assessment

Excavation damage due to third party damages in section **City of Chicago, Water (Chicago Water Dept)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Excavation damages are being caused by third-party excavators not following one call laws.
- Excavation damages caused by third-party excavators have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The (crews/contractors/excavators) identified for this section have caused damage that resulted in a reportable incident.
- Disruption of service and cost to return the system to service after the damages caused by the (crews/contractors/excavators) identified for this section are more serious when compared to all other excavation caused damages

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
1	0	1	22.52	9.42	1.5	1.275	1.25
Previous Plan							
1	3	1	19.73	7.97	1.5	1.32	1.25
	Explanation: Third party with the most hit to PGL facilities						

Ranked here, in part, for the following reasons:

- Excavation damages are being caused by third-party excavators not following one call laws.
- Excavation damages caused by third-party excavators have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.
- The (crews/contractors/excavators) identified for this section have caused damage that resulted in a reportable incident.

Additional/Accelerated Action(s)

For **excavation damage due to third party damages** on the **City of Chicago, Water** section, PEOPLES GAS will:

- conduct additional leak surveys.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- conduct enhanced awareness education programs following the guidelines of the Supplemental Frequency and Activity in API RP 1162 Public Awareness Programs for Pipeline Operators incorporated by reference in 49 CFR Part 192.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- improve accuracy of line marking.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- inspect for facility support/protection.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor backfill operation.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor/audit excavation activity.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- provide additional excavation damage prevention training.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- recruit support of public safety officials.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- discuss and request regulatory intervention from the appropriate agency to address specific violations by a third party (e.g., excavators, property owners, other facility operators) of state damage prevention laws.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

Performance Measure(s)

For **excavation damage due to third party damages** on the **City of Chicago, Water** section, PEOPLES GAS will:

- Record the number of hits to gas facilities per 1000 tickets caused by the City of Chicago Water Department.

PEOPLES GAS will implement as follows:

Already Implemented: System Integrity tracks all damages to company facilities in PGL Facility Damage Database. See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

b. **Section: Benchmark Construction** portion of PEOPLES GAS portion of PEOPLES GAS

Threat: Excavation Damage -> Third Party Damages -> Third Party Damages

Description: Water Main Installation Contractor for City of Chicago

Threat Assessment

Excavation damage due to third party damages in section **Benchmark Construction (Water Main Installation Contractor for City of Chicago)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Excavation damages are being caused by third-party excavators not following one call laws.
- Excavation damages caused by third-party excavators have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
2	2	2	16.51	9.42	1.1	1.275	1.25
	Explanation:	Equal Relative Risk Score to Joel Kennedy Damages, but per PGL Hit Database, responsible for higher hits per 1000 locate ratio.					
Previous Plan							
2	5	2	19.01	7.68	1.5	1.32	1.25
	Explanation:	Combined this is the third party with second most hits on PGL facilities.					

Ranked here, in part, for the following reasons:

- Excavation damages are being caused by third-party excavators not following one call laws.
- Excavation damages caused by third-party excavators have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.
- Disruption of service and cost to return the system to service after the damages caused by the (crews/contractors/excavators) identified for this section are about the same when compared to all other excavation caused damages
- Operator overrode ranking with this explanation:

Equal Relative Risk Score to Joel Kennedy Damages, but per PGL Hit Database, responsible for higher hits per 1000 locate ratio.

Additional/Accelerated Action(s)

For **excavation damage due to third party damages** on the **Benchmark Construction** section, PEOPLES GAS will:

- conduct additional leak surveys.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- conduct enhanced awareness education programs following the guidelines of the Supplemental Frequency and Activity in API RP 1162 Public Awareness Programs for Pipeline Operators incorporated by reference in 49 CFR Part 192.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- inspect for facility support/protection.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor backfill operation.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor/audit excavation activity.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- provide additional excavation damage prevention training.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- recruit support of public safety officials.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- discuss and request regulatory intervention from the appropriate agency to address specific violations by a third party (e.g., excavators, property owners, other facility operators) of state damage prevention laws.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

Performance Measure(s)

For **excavation damage due to third party damages** on the **Benchmark Construction** section, PEOPLES GAS will:

- Record the number of hits to gas facilities per 1000 tickets caused by Benchmark Construction.

PEOPLES GAS will implement as follows:

Already Implemented: System Integrity tracks all damages to company facilities in PGL Facility Damage Database. See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

c. **Section: Joel Kennedy Construction** portion of PEOPLES GAS portion of PEOPLES GAS

Threat: Excavation Damage -> Third Party Damages -> Third Party Damages

Description: Water Main Installation Contractor for City of Chicago

Threat Assessment

Excavation damage due to third party damages in section **Joel Kennedy Construction (Water Main Installation Contractor for City of Chicago)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Excavation damages are being caused by third-party excavators not following one call laws.
- Excavation damages caused by third-party excavators have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
3	3	2	16.51	9.42	1.1	1.275	1.25
	Explanation:	Equal Relative Risk Score to Benchmark Damages, but per PGL Hit Database, responsible for lower hits per 1000 locate ratio.					
No Previous Plan							

Ranked here, in part, for the following reasons:

- Excavation damages are being caused by third-party excavators not following one call laws.
- Excavation damages caused by third-party excavators have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.
- Disruption of service and cost to return the system to service after the damages caused by the (crews/contractors/excavators) identified for this section are about the same when compared to all other excavation caused damages
- Operator override ranking with this explanation:

Equal Relative Risk Score to Benchmark Damages, but per PGL Hit Database, responsible for lower hits per 1000 locate ratio.

Additional/Accelerated Action(s)

For **excavation damage due to third party damages** on the **Joel Kennedy Construction** section, PEOPLES GAS will:

- conduct additional leak surveys.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- conduct enhanced awareness education programs following the guidelines of the Supplemental Frequency and Activity in API RP 1162 Public Awareness Programs for Pipeline Operators incorporated by reference in 49 CFR Part 192.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- improve accuracy of line marking.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- inspect for facility support/protection.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor backfill operation.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor/audit excavation activity.

PEOPLES GAS will implement as follows:

AG 4.01 Attach 05

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- provide additional excavation damage prevention training.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- recruit support of public safety officials.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- discuss and request regulatory intervention from the appropriate agency to address specific violations by a third party (e.g., excavators, property owners, other facility operators) of state damage prevention laws.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

Performance Measure(s)

For **excavation damage due to third party damages** on the **Joel Kennedy Construction** section, PEOPLES GAS will:

- Record the number of hits to gas facilities per 1000 tickets caused by Joel Kennedy Construction.

PEOPLES GAS will implement as follows:

Already Implemented: System Integrity tracks all damages to company facilities in PGL Facility Damage Database. See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

d. **Section: Bell Joints & Mechanical Joints** portion of PEOPLES GAS

Threat: Other Threats -> Other

Description: Leaking Main Bell & Mechanical Joints Due to Age

Threat Assessment

Other threats in section **Bell Joints & Mechanical Joints (Leaking Main Bell & Mechanical Joints Due to Age)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
4	4	35	0	0	1	1.463	1.00
Explanation: Ranked first of the 11 Manually Entered Threats. Relative Risk Score of 16.15							
Previous Plan							
4	6	57	0	0	1	1.265	1.00
Explanation: A major component of "Other" category is Bell Joint & Mechanical Joint leaks							

Ranked here, in part, for the following reasons:

- Operator overrode ranking with this explanation:

Ranked first of the 11 Manually Entered Threats. Relative Risk Score of 16.15

Additional/Accelerated Action(s)

For **other threats** on the **Bell Joints & Mechanical Joints** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

- Accelerated Main Replacement Project to eliminate Cast and Ductile Iron Mains.

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

Performance Measure(s)

For **other threats** on the **Bell Joints & Mechanical Joints** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

e. **Section: Peoples Gas Contractors** portion of PEOPLES GAS portion of PEOPLES GAS

Threat: Excavation Damage -> Crew or Contractor Damages -> Crew or Contractor Damages

Description: Damages to PGL facilities by 2nd Parties (Peoples Gas Contractors)

Threat Assessment

Excavation damage due to your crew or contractor damages in section **Peoples Gas Contractors (Damages to PGL facilities by 2nd Parties (Peoples Gas Contractors))** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Excavation damages are being caused by operator's crews or contractors not following one call laws.
- Excavation damages caused by operator's crews or contractors have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.
- Excavation damages caused by operator's crews or contractors have occurred due to failure to follow company procedures/safety practices.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
5	5	4	15.09	9.47	1	1.275	1.25
Explanation:							
No Previous Plan							

Ranked here, in part, for the following reasons:

- Excavation damages caused by operator's crews or contractors have been due to unmarked or inaccurately marked facilities.
- Excavation damages are being caused by operator's crews or contractors not following one call laws.
- Excavation damages are caused by failure to protect pipe during backfill operations.
- Excavation damages caused by operator's crews or contractors have occurred due to failure to follow company procedures/safety practices.
- Operator overrode ranking with this explanation:

For **excavation damage due to your crew or contractor damages** on the **Peoples Gas Contractors** section, PEOPLES GAS will:

- conduct additional leak surveys.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- conduct enhanced awareness education programs following the guidelines of the Supplemental Frequency and Activity in API RP 1162 Public Awareness Programs for Pipeline Operators incorporated by reference in 49 CFR Part 192.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- expand equipment testing, calibration, upgrade.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor.

- improve accuracy of line marking.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor.

- inspect for facility support/protection.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor backfill operation.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor/audit excavation activity.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- recruit support of public safety officials.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- re-evaluate contractor.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor.

Performance Measure(s)

For **excavation damage due to your crew or contractor damages** on the **Peoples Gas Contractors** section, PEOPLES GAS will:

- track the frequency of these failures per 1000 tickets.

PEOPLES GAS will implement as follows:

Already Implemented: System Integrity tracks PGL Contractor damages to company facilities in PGL Facility Damage Database. See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

f. **Section: 6" Cast Iron Mains** portion of PEOPLES GAS

Threat: Natural Forces -> Concentrated Area

Description: 6" Diameter Cast Iron Mains

Threat Assessment

Natural forces in section **6" Cast Iron Mains (6" Diameter Cast Iron Mains)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Leaks, failures or damages are averaging one (1) or more per year.
- Portions of the system/section are in areas prone to land subsidence, earthquakes or washouts.
- System/section contains Cast Iron pipe 8" or less in diameter.
- Damages have occurred on cast iron due to ground movement, frost heave, earth subsidence.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
6	6	6	13.69	8.58	1.15	1.11	1.25
	Explanation:	Per SME Group Meeting, ranked one threat higher due to high concentration of 6"CI Mains and susceptibility of this section to fail.					
Previous Plan							
6	9	6	15	10	1.05	1.143	1.25
	Explanation:	Zoomerang survey rank is 9 (tie)					

Ranked here, in part, for the following reasons:

- System/section contains Cast Iron pipe 8" or less in diameter.
- Portions of the system/section are in areas prone to land subsidence, earthquakes or washouts.
- Damages have occurred on cast iron due to ground movement, frost heave, earth subsidence.
- Leaks, failures or damages are averaging one (1) or more per year.
- Operator overrode ranking with this explanation:

Per SME Group Meeting, ranked one threat higher due to high concentration of 6"CI Mains and susceptibility of this section to fail.

Additional/Accelerated Action(s)

For **natural forces** on the **6" Cast Iron Mains** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

- Retirement Program to replace all Cast/Ductile Iron with modern materials (HDPE Plastic/CP Steel).

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

For **natural forces** on the **6" Cast Iron Mains** section, PEOPLES GAS will:

- track the number of leaks or failures due to natural forces repaired each year per mile of main (and/or per service) in the 6" Cast Iron Mains.

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

g. **Section: Entire System** portion of PEOPLES GAS

Threat: Natural Forces -> Concentrated Area

Description: Entire System Except 6" Diameter Cast Iron Mains

Threat Assessment

Natural forces in section **Entire System (Entire System Except 6" Diameter Cast Iron Mains)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Leaks, failures or damages are averaging one (1) or more per year.
- Portions of the system/section are in areas prone to land subsidence, earthquakes or washouts.
- System/section contains Cast Iron pipe 8" or less in diameter.
- Damages have occurred on cast iron due to ground movement, frost heave, earth subsidence.
- Natural forces have caused leaks, failures or damages to steel or plastic pipeline in the system/section.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
7	7	5	13.88	10	1	1.11	1.25
	Explanation:						
Previous Plan							
7	2	5	15.72	10	1.1	1.143	1.25
	Explanation:	Zoomerang survey rank is 2					

Ranked here, in part, for the following reasons:

- System/section contains Cast Iron pipe 8" or less in diameter.
- Portions of the system/section are in areas prone to land subsidence, earthquakes or washouts.
- Damages have occurred on cast iron due to ground movement, frost heave, earth subsidence.
- Natural forces have caused leaks, failures or damages to steel or plastic pipeline in the system/section.
- Operator override ranking with this explanation:

Additional/Accelerated Action(s)

For **natural forces** on the **Entire System** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

- Retirement Program to replace all Cast/Ductile Iron with modern materials (HDPE Plastic/CP Steel).

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

Performance Measure(s)

For **natural forces** on the **Entire System** section, PEOPLES GAS will:

- track the number of leaks or failures due to natural forces repaired each year per mile of main (and/or per service) in the Entire System.

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

h. Section: Cast, Ductile, Wrought Iron (larger than 8") portion of PEOPLES GAS

Threat: Corrosion -> External Corrosion

Description: Entire System

Threat Assessment

External corrosion on cast, wrought, ductile iron mains and services (larger than 8") was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Repaired leaks per mile of mains are increasing.
- Exposed pipe inspections indicate a corrosion problem.
- Confirmed corrosion leaks have occurred on this section.
- Cast/ductile iron mains have steel laterals connected with no electrical isolation.
- Fractures have occurred on the cast/ductile iron pipes other than those related to excavation activities.
- Exposed pipe inspections indicate that graphitization is occurring.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The pressure/diameter of this section is substantially greater than the average of the system.
- The pipe is predominately located within business districts.
- A failure of this section could result in significant disruption of service.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
8	0	7	11.21	7	1.45	1.104	1.00
Previous Plan							
8	18	17	10.24	5.8	1.45	1.218	1.00
	Explanation: Use default SHRIMP ranking						

Ranked here, in part, for the following reasons:

- Fractures have occurred on the cast/ductile iron pipes other than those related to excavation activities.
- Repaired leaks per mile of mains are increasing.
- Cast/ductile iron mains have steel laterals connected with no electrical isolation.
- Exposed pipe inspections indicate a corrosion problem.

Additional/Accelerated Action(s)

For **external corrosion on cast, wrought, ductile iron mains and services (larger than 8")** on the **Cast, Ductile, Wrought Iron (larger than 8")** section, PEOPLES GAS will:

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- Accelerated Main Replacement Program to replace all Cast/Ductile Iron with modern materials. (HDPE Plastic and CP Steel)

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

Performance Measure(s)

For **external corrosion on cast, wrought, ductile iron mains and services (larger than 8")** on the **Cast, Ductile, Wrought Iron (larger than 8")** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Cast, Ductile, Wrought Iron (larger than 8").

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

i. Section: Other Outside Force Damage - Services portion of PEOPLES GAS

Threat: Other Outside Forces -> Other Outside Forces

Description: Other Outside Force Damages on Service Pipes

Threat Assessment

Other outside forces in section **Other Outside Force Damage - Services (Other Outside Force Damages on Service Pipes)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Leaks, failures or damages are averaging one (1) or more per year.
- Above ground facilities are being hit by vehicles.
- Below ground facilities have been damaged due to heavy vehicles driving along or over the facility location.
- Damage has been caused by malicious actions (vandalism) of unauthorized individuals or unauthorized alteration of system.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
9	0	8	10.14	10	1	1.014	1.00
Previous Plan							
9	5	25	7.81	7	1.1	1.014	1.00
	Explanation: Zoomerang survey rank is 5						

Ranked here, in part, for the following reasons:

- Above ground facilities are being hit by vehicles.
- Below ground facilities have been damaged due to heavy vehicles driving along or over the facility location.
- Damage has been caused by malicious actions (vandalism) of unauthorized individuals or unauthorized alteration of system.

Additional/Accelerated Action(s)

For **other outside forces** on the **Other Outside Force Damage - Services** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential

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DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

Performance Measure(s)

For **other outside forces** on the **Other Outside Force Damage - Services** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

j. Section: Cast, Ductile, Wrought Iron (8" or smaller) portion of PEOPLES GAS

Threat: Corrosion -> External Corrosion

Description: Entire System

Threat Assessment

External corrosion on cast, wrought, ductile iron mains and services (8" or smaller) was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Repaired leaks per mile of mains are increasing.
- Exposed pipe inspections indicate a corrosion problem.
- Confirmed corrosion leaks have occurred on this section.
- Cast/ductile iron mains have steel laterals connected with no electrical isolation.
- Fractures have occurred on the cast/ductile iron pipes other than those related to excavation activities.
- Exposed pipe inspections indicate that graphitization is occurring.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
10	0	9	9.51	8.2	1.05	1.104	1.00
Previous Plan							
10	2	15	11.25	8.8	1.05	1.218	1.00
	Explanation: Frequency and consequence of this material failing is high						

Ranked here, in part, for the following reasons:

- Repaired leaks per mile of mains are increasing.
- Fractures have occurred on the cast/ductile iron pipes other than those related to excavation activities.
- Cast/ductile iron mains have steel laterals connected with no electrical isolation.
- Exposed pipe inspections indicate that graphitization is occurring.

Additional/Accelerated Action(s)

For **external corrosion on cast, wrought, ductile iron mains and services (8" or smaller)** on the **Cast, Ductile, Wrought Iron (8" or smaller)** section, PEOPLES GAS will:

- Accelerated Main Replacement Program to replace all Cast/Ductile Iron with modern materials. (HDPE Plastic and CP Steel)

PEOPLES GAS will implement as follows:

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Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

Performance Measure(s)

For **external corrosion on cast, wrought, ductile iron mains and services (8" or smaller)** on the **Cast, Ductile, Wrought Iron (8" or smaller)** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Cast, Ductile, Wrought Iron (8" or smaller).

PEOPLES GAS will implement as follows:

See PGL DIMP Appendix H - Mandatory Metrics and Performance Measures

k. **Section: Low Pressure Vaults** portion of Failing Equipment portion of PEOPLES GAS

Threat: Equipment Malfunction -> Other Equipment Experiencing Failure -> Specific Other Equipment Experiencing Failure

Description: Medium Pressure to Low Pressure Vaults

Threat Assessment

Equipment malfunctions due to failing other equipment in section **Low Pressure Vaults (Medium Pressure to Low Pressure Vaults)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- The failing element of the equipment causes system pressure to exceed the MAOP.
- The likelihood of this piece of equipment failing is medium.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The equipment is primarily within business districts.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
11	0	10	9.44	7.75	1.2	1.015	1.00
Previous Plan							
11	25	38	5.68	5.5	1	1.033	1.00
	Explanation: Zoomerang survey rank is 25 (tie)						

Ranked here, in part, for the following reasons:

- The likelihood of this piece of equipment failing is medium.
- The likelihood that a failure of this equipment will become a Grade 1 leak is high.
- The failing element of the equipment causes system pressure to exceed the MAOP.
- The equipment is primarily within business districts.

Additional/Accelerated Action(s)

For **equipment malfunctions due to failing other equipment** on the **Low Pressure Vaults** section, PEOPLES GAS will:

- perform inspections and maintenance on an accelerated frequency of Monthly on this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - LP Vaults are inspected monthly per SME Alonzo Foster, Supervisory Engineer Gas Operations.

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented - Gate Stations are inspected monthly per SME Alonzo Foster, Supervisory Engineer Gas Operations.

- Accelerated Main Replacement Program to eliminate the Low Pressure side of the distribution system, and in turn, all LP vaults.

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

Performance Measure(s)

For **equipment malfunctions due to failing other equipment** on the **Low Pressure Vaults** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record, and inspection results are saved by Gas Operations Department.

I. Section: Other Outside Force Damage - Mains portion of PEOPLES GAS

Threat: Other Outside Forces -> Other Outside Forces

Description: Other Outside Force Damages on Main Pipes

Threat Assessment

Other outside forces in section **Other Outside Force Damage - Mains (Other Outside Force Damages on Main Pipes)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Leaks, failures or damages are averaging one (1) or more per year.
- Above ground facilities are being hit by vehicles.
- Below ground facilities have been damaged due to heavy vehicles driving along or over the facility location.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
12	0	11	9.04	7.75	1.15	1.014	1.00
Previous Plan							
12	14	42	4.26	4	1.05	1.014	1.00
	Explanation: Zoomerang survey rank is 14						

Ranked here, in part, for the following reasons:

- Above ground facilities are being hit by vehicles.
- Below ground facilities have been damaged due to heavy vehicles driving along or over the facility location.
- The pressure/diameter of this section is somewhat greater than the average of the system.
- A failure of this section could result in moderate disruption of service.

Additional/Accelerated Action(s)

For **other outside forces** on the **Other Outside Force Damage - Mains** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to

exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

Performance Measure(s)

For **other outside forces** on the **Other Outside Force Damage - Mains** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in the system of record.

m. **Section: Peoples Gas** portion of PEOPLES GAS portion of PEOPLES GAS

Threat: Excavation Damage -> Crew or Contractor Damages -> Crew or Contractor Damages

Description: Damages to PGL facilities by PGL Crews (Peoples Gas)

Threat Assessment

Excavation damage due to your crew or contractor damages in section **Peoples Gas (Damages to PGL facilities by PGL Crews (Peoples Gas))** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Excavation damages caused by operator's crews or contractors have been due to unmarked or inaccurately marked facilities.
- Excavation damages are caused by failure to protect pipe during backfill operations.
- Excavation damages caused by operator's crews or contractors have occurred due to failure to follow company procedures/safety practices.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
13	0	12	7.92	4.97	1	1.275	1.25
Previous Plan							
13	16	16	10.26	4.44	1.4	1.32	1.25
	Explanation:	Third most number of 3rd party damage to PGL facilities. Use default SHRIMP ranking					

Ranked here, in part, for the following reasons:

- Excavation damages caused by operator's crews or contractors have been due to unmarked or inaccurately marked facilities.
- Excavation damages caused by operator's crews or contractors have occurred due to failure to follow company procedures/safety practices.
- Excavation damages are caused by failure to protect pipe during backfill operations.

Additional/Accelerated Action(s)

For **excavation damage due to your crew or contractor damages** on the **Peoples Gas** section, PEOPLES GAS will:

- expand equipment testing, calibration, upgrade.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- improve accuracy of line marking.

PEOPLES GAS will implement as follows:

- PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- monitor/audit excavation activity.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- provide additional excavation damage prevention training.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

- review map availability.

PEOPLES GAS will implement as follows:

Already implemented per SME interview with Manager System Integrity Vipul Kapoor. See PGL O&M Plan Exhibit IX: Damage Prevention Program.

Performance Measure(s)

For **excavation damage due to your crew or contractor damages** on the **Peoples Gas** section, PEOPLES GAS will:

- track the frequency of these failures per 1000 tickets.

PEOPLES GAS will implement as follows:

Already Implemented: System Integrity tracks all company crew damages to company facilities in PGL Facility Damage Database.

n. **Section: Service Pipe** portion of PEOPLES GAS

Threat: Material, Weld or Joint Failure -> Manufacturing Defects

Description: Clear Plastic

Threat Assessment

Material, weld or joint due to manufacturing defects was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Failures in this section occur more than once per year.
- Failures Occur more frequently than the scheduled leak survey intervals.
- The likelihood that a leak in this section will become a Grade 1 leak is high.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

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Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
14	0	13	7.87	7.75	1	1.015	1.00
Previous Plan							
14	31	26	7.79	7.75	1	1.005	1.00
	Explanation: Zoomerang survey rank is 31						

Ranked here, in part, for the following reasons:

- Failures in this section occur more than once per year.
- The likelihood that a leak in this section will become a Grade 1 leak is high.

Additional/Accelerated Action(s)

For **material, weld or joint due to manufacturing defects** on the **Service Pipe** section, PEOPLES GAS will:

- monitor or trend material failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, PGL sends any in-service mechanical fitting failure to Technical Training for analysis and entry into the electronic database maintained by the designated engineer at Technical Training.

- Accelerated Main Replacement Program to renew clear plastic services with modern materials (CP Steel/HDPE Plastic)

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

Performance Measure(s)

For **material, weld or joint due to manufacturing defects** on the **Service Pipe** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks and their related material type are recorded in system of record.

o. Section: Gate Stations portion of Failing Equipment portion of PEOPLES GAS

Threat: Equipment Malfunction -> Other Equipment Experiencing Failure -> Specific Other Equipment Experiencing Failure

Description: All Gate Stations

Threat Assessment

Equipment malfunctions due to failing other equipment in section **Gate Stations (All Gate Stations)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- The equipment malfunctioning is due to failing seals, gaskets, o-rings, packing, etc.
- The failing element of the equipment causes system pressure to exceed the MAOP.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The size/capacity of the equipment is substantially greater than other equipment in the system as a whole.
- The impact on the utility and its customers if this equipment were to fail would be high.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
15	0	14	7.26	5.5	1.3	1.015	1.00
Previous Plan							
15	45	53	1.03	1	1	1.033	1.00

Ranked here, in part, for the following reasons:

- The likelihood that a failure of this equipment will become a Grade 1 leak is high.
- The likelihood of this piece of equipment failing is low.
- The failing element of the equipment causes system pressure to exceed the MAOP.
- The size/capacity of the equipment is substantially greater than other equipment in the system as a whole.

Additional/Accelerated Action(s)

For **equipment malfunctions due to failing other equipment** on the **Gate Stations** section, PEOPLES GAS will:

- perform inspections and maintenance on an accelerated frequency of Monthly on this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - Gate Stations are inspected monthly per SME Alonzo Foster, Supervisory Engineer Gas Operations.

- repair problem equipment and/or change settings.

PEOPLES GAS will implement as follows:

Already Implemented per SME Interview with Supervisory Engineer Alonzo Foster - Gas Operations

Performance Measure(s)

For **equipment malfunctions due to failing other equipment** on the **Gate Stations** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record, and inspection results are saved by Gas Operations Department.

p. Section: Bridges and Tunnels portion of PEOPLES GAS portion of PEOPLES GAS

Threat: Corrosion -> Atmospheric Corrosion -> Atmospheric Corrosion

Description: Bridge and Tunnel Inspections

Threat Assessment

Atmospheric corrosion in section **Bridges and Tunnels (Bridge and Tunnel Inspections)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Bridges and Tunnels has facilities that require atmospheric corrosion inspections.
- Inspections have found metal loss due to atmospheric corrosion over the past 15 years.
- Inspections have found problems with above ground pipe coatings that could not be fixed by routine maintenance

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The pressure/diameter of this section is substantially greater than the average of the system.
- The pipe is predominately located within business districts.
- A failure of this section could result in significant disruption of service.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
16	0	15	7.13	4.38	1.475	1.104	1.00
Previous Plan							

16	11	19	9.9	6.25	1.3	1.218	1.00
	Explanation:	Zoomerang survey rank is 11					

Ranked here, in part, for the following reasons:

- Inspections have found metal loss due to atmospheric corrosion over the past 15 years.
- Inspections have found problems with above ground pipe coatings that could not be fixed by routine maintenance
- The pressure/diameter of this section is substantially greater than the average of the system.
- The pipe is predominately located within business districts.

q. **Section: Unprotected, Bare Steel** portion of PEOPLES GAS

Threat: Corrosion -> External Corrosion

Description: Entire System

Threat Assessment

External corrosion on bare, unprotected, steel mains and services was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Exposed pipe inspections indicate a corrosion problem.
- Confirmed corrosion leaks have occurred on this section.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
17	0	16	7.07	6.4	1	1.104	1.00
Previous Plan							
17	20	20	9.26	7.6	1	1.218	1.00
	Explanation:	Use default SHRIMP ranking					

Ranked here, in part, for the following reasons:

- Exposed pipe inspections indicate a corrosion problem.
- Confirmed corrosion leaks have occurred on this section.

Additional/Accelerated Action(s)

For **external corrosion on bare, unprotected, steel mains and services** on the **Unprotected, Bare Steel** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

- Accelerated Main Replacement Program to renew bare steel services with modern materials (CP steel/HDPE PLastic)

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

Performance Measure(s)

For **external corrosion on bare, unprotected, steel mains and services** on the **Unprotected, Bare Steel** section, PEOPLES GAS will:

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- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Unprotected, Bare Steel.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks and their related material type are recorded in system of record.

r. **Section: High Pressure to High Pressure Stations** portion of Failing Equipment portion of PEOPLES GAS

Threat: Equipment Malfunction -> Other Equipment Experiencing Failure -> Specific Other Equipment Experiencing Failure

Description: High Pressure to High Pressure Station

Threat Assessment

Equipment malfunctions due to failing other equipment in section **High Pressure to High Pressure Stations (High Pressure to High Pressure Station)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- The failing element of the equipment causes system pressure to exceed the MAOP.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The impact on the utility and its customers if this equipment were to fail would be high.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
18	0	19	6.7	5.5	1.2	1.015	1.00
Previous Plan							
18	27	43	4.03	3.25	1.2	1.033	1.00
	Explanation: Zoomerang survey rank is 27						

Ranked here, in part, for the following reasons:

- The likelihood that a failure of this equipment will become a Grade 1 leak is high.
- The likelihood of this piece of equipment failing is low.
- The failing element of the equipment causes system pressure to exceed the MAOP.
- The size/capacity of the equipment is somewhat greater than other equipment in the system as a whole.

Additional/Accelerated Action(s)

For **equipment malfunctions due to failing other equipment** on the **High Pressure to High Pressure Stations** section, PEOPLES GAS will:

- perform inspections and maintenance on an accelerated frequency of Monthly on this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - HP to HP Stations are inspected monthly per SME Alonzo Foster, Supervisory Engineer Gas Operations.

- repair problem equipment and/or change settings.

PEOPLES GAS will implement as follows:

Already Implemented per SME Interview with Supervisory Engineer Alonzo Foster - Gas Operations

Performance Measure(s)

For **equipment malfunctions due to failing other equipment** on the **High Pressure to High Pressure Stations** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record, and inspection results are saved by Gas Operations Department.

s. **Section: Inaccessible Valves** portion of PEOPLES GAS

Threat: Other Threats -> Other

Description: Paved Over, Dirt in B-Box

Threat Assessment

Other threats in section **Inaccessible Valves (Paved Over, Dirt in B-Box)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
19	19	35	0	0	1	1.463	1.00
	Explanation:	Ranked 2 of Manually Entered Threats. Relative Risk Score of 7.34.					
Previous Plan							
19	21	57	0	0	1	1.265	1.00
	Explanation:	potential consequence is high, annual valve inspections mitigate this threat					

Ranked here, in part, for the following reasons:

- Operator overrode ranking with this explanation:
Ranked 2 of Manually Entered Threats. Relative Risk Score of 7.34.

Additional/Accelerated Action(s)

For **other threats** on the **Inaccessible Valves** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

PEOPLES GAS will implement as follows:

Already Implemented - Valve inspections indicating access problems are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit XII: Gas Operations Manual.

Performance Measure(s)

For **other threats** on the **Inaccessible Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Valve inspections indicating access problems are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit XII: Gas Operations Manual.

t. **Section: Inside Atmospheric Corrosion** portion of PEOPLES GAS portion of PEOPLES GAS

Threat: Corrosion -> Atmospheric Corrosion -> Atmospheric Corrosion

Description: Inside Service Pipe

Threat Assessment

Atmospheric corrosion in section **Inside Atmospheric Corrosion (Inside Service Pipe)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

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- Inside Atmospheric Corrosion has facilities that require atmospheric corrosion inspections.
- Inspections have found metal loss due to atmospheric corrosion over the past 15 years.
- Leaks caused by atmospheric corrosion have required repair over the past 15 years.
- Inspections have found problems with above ground pipe coatings that could not be fixed by routine maintenance

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
20	20	17	6.9	6.25	1	1.104	1.00
	Explanation:	Per SME group meeting, ranked one threat higher due to high likelihood of any failure in this section resulting in a Grade 1 Leak.					
Previous Plan							
20	17	21	8.75	6.25	1.15	1.218	1.00
	Explanation:	Zoomerang survey rank is 17 (tie)					

Ranked here, in part, for the following reasons:

- Inspections have found problems with above ground pipe coatings that could not be fixed by routine maintenance
- Leaks caused by atmospheric corrosion have required repair over the past 15 years.
- Inspections have found metal loss due to atmospheric corrosion over the past 15 years.
- Operator overrode ranking with this explanation:

Per SME group meeting, ranked one threat higher due to high likelihood of any failure in this section resulting in a Grade 1 Leak.

Additional/Accelerated Action(s)

For **atmospheric corrosion** on the **Inside Atmospheric Corrosion** section, PEOPLES GAS will:

- Inside Safety Inspections - performed every three years not to exceed 51 months.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

- Accelerated Main Replacement Program to limit inside company owned piping. All inside meters to be moved outside when service is renewed. Any meters left inside require manager authorization.

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

Performance Measure(s)

For **atmospheric corrosion** on the **Inside Atmospheric Corrosion** section, PEOPLES GAS will:

- Track the number of Inside Safety Inspections in which pipe condition was noted as poor due to corrosion.

PEOPLES GAS will implement as follows:

Already Implemented - Inside Safety Inspections are completed with a required field denoting the condition of exposed inside piping.

u. **Section: Outside Atmospheric Corrosion** portion of PEOPLES GAS portion of PEOPLES GAS

Threat: Corrosion -> Atmospheric Corrosion -> Atmospheric Corrosion

Description: Outside Service Riser Pipe

Threat Assessment

Atmospheric corrosion in section **Outside Atmospheric Corrosion (Outside Service Riser Pipe)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Outside Atmospheric Corrosion has facilities that require atmospheric corrosion inspections.
- Inspections have found metal loss due to atmospheric corrosion over the past 15 years.
- Leaks caused by atmospheric corrosion have required repair over the past 15 years.
- Inspections have found problems with above ground pipe coatings that could not be fixed by routine maintenance

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
21	20	17	6.9	6.25	1	1.104	1.00
	Explanation:	Ranked one threat lower due to Inside Atmospheric Corrosion threat ranked one higher.					
Previous Plan							
21	7	21	8.75	6.25	1.15	1.218	1.00
	Explanation:	Zoomerang survey rank is 7 (tie)					

Ranked here, in part, for the following reasons:

- Inspections have found problems with above ground pipe coatings that could not be fixed by routine maintenance
- Leaks caused by atmospheric corrosion have required repair over the past 15 years.
- Inspections have found metal loss due to atmospheric corrosion over the past 15 years.
- Operator overrode ranking with this explanation:

Ranked one threat lower due to Inside Atmospheric Corrosion threat ranked one higher.

Additional/Accelerated Action(s)

For **atmospheric corrosion** on the **Outside Atmospheric Corrosion** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

Performance Measure(s)

For **atmospheric corrosion** on the **Outside Atmospheric Corrosion** section, PEOPLES GAS will:

- track the frequency of leaks or failures due to atmospheric corrosion repaired each year per mile of main (and/or per service) in the Outside Atmospheric Corrosion.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in the system of record.

v. **Section: Unprotected, Coated Steel** portion of PEOPLES GAS

Threat: Corrosion -> External Corrosion

Description: Entire System

Threat Assessment

External corrosion on coated, unprotected, steel mains and services was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

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- Exposed pipe inspections indicate a corrosion problem.
- Confirmed corrosion leaks have occurred on this section.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The pipe is predominately located within business districts.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
22	0	20	6.6	4.6	1.3	1.104	1.00
Previous Plan							
22	39	39	5.6	4.6	1	1.218	1.00
	Explanation: Use default SHRIMP ranking						

Ranked here, in part, for the following reasons:

- Exposed pipe inspections indicate a corrosion problem.
- Confirmed corrosion leaks have occurred on this section.
- The pipe is predominately located within business districts.
- The pressure/diameter of this section is somewhat greater than the average of the system.

Additional/Accelerated Action(s)

For **external corrosion on coated, unprotected, steel mains and services** on the **Unprotected, Coated Steel** section, PEOPLES GAS will:

- Additional Leak Surveys: Business Districts - annually, not to exceed 15 months. Loop - 3 times annually. MP Residential DI/CI mains - annually. MP LP Residential - every 5 years not to exceed 63 months. Non CP Steel - every 3 years not to exceed 39 months. High Pressure - 4 times annually.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IV: Safety Inspection Program.

- Accelerated Main Replacement Program to renew non CP Steel services with modern materials (CP Steel/HDPE Plastic)

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

Performance Measure(s)

For **external corrosion on coated, unprotected, steel mains and services** on the **Unprotected, Coated Steel** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Unprotected, Coated Steel.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks and their related material type are recorded in system of record.

w. **Section: Medium Pressure Vaults** portion of Failing Equipment portion of PEOPLES GAS

Threat: Equipment Malfunction -> Other Equipment Experiencing Failure -> Specific Other Equipment Experiencing Failure

Description: High Pressure to Medium Pressure Vaults

Threat Assessment

Equipment malfunctions due to failing other equipment in section **Medium Pressure Vaults (High Pressure to Medium Pressure Vaults)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

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- The failing element of the equipment causes system pressure to exceed the MAOP.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
23	0	21	6.42	5.5	1.15	1.015	1.00
Previous Plan							
23	19	47	3.53	3.25	1.05	1.033	1.00
	Explanation: Zoomerang survey rank is 19						

Ranked here, in part, for the following reasons:

- The likelihood that a failure of this equipment will become a Grade 1 leak is high.
- The likelihood of this piece of equipment failing is low.
- The failing element of the equipment causes system pressure to exceed the MAOP.
- The size/capacity of the equipment is somewhat greater than other equipment in the system as a whole.

Additional/Accelerated Action(s)

For **equipment malfunctions due to failing other equipment** on the **Medium Pressure Vaults** section, PEOPLES GAS will:

- perform inspections and maintenance on an accelerated frequency of Monthly on this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - MP Vaults are inspected monthly per SME Alonzo Foster, Supervisory Engineer Gas Operations.

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented per SME Interview with Supervisory Engineer Alonzo Foster - Gas Operations

Performance Measure(s)

For **equipment malfunctions due to failing other equipment** on the **Medium Pressure Vaults** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record, and inspection results are saved by Gas Operations Department.

x. **Section: Fittings** portion of PEOPLES GAS

Threat: Material, Weld or Joint Failure -> Manufacturing Defects

Description: Mechanical Joint

Threat Assessment

Material, weld or joint due to manufacturing defects was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Failures in this section occur more than once per year.
- Failures Occur more frequently than the scheduled leak survey intervals.
- Your current material specification requirements and construction/installation procedures have not been modified to address this issue.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
24	0	22	6.14	5.5	1.1	1.015	1.00
Previous Plan							
24	34	34	6.36	5.5	1.15	1.005	1.00
	Explanation: Zoomerang survey rank is 34						

Ranked here, in part, for the following reasons:

- Failures in this section occur more than once per year.
- The pressure/diameter of this section is somewhat greater than the average of the system.

Additional/Accelerated Action(s)

For **material, weld or joint due to manufacturing defects** on the **Fittings** section, PEOPLES GAS will:

- monitor or trend material failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, PGL sends any in-service mechanical fitting failure to Technical Training for analysis and entry into the electronic database maintained by the designated engineer at Technical Training.

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, PGL sends any in-service mechanical fitting failure to Technical Training for analysis and entry into the electronic database maintained by the designated engineer at Technical Training.

Performance Measure(s)

For **material, weld or joint due to manufacturing defects** on the **Fittings** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, PGL sends any in-service mechanical fitting failure to Technical Training for analysis and entry into the electronic database maintained by the designated engineer within the Compliance Group.

y. **Section: Security Valves** portion of Failing Equipment portion of PEOPLES GAS

Threat: Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

Description: Slam Shut Security Valves

Threat Assessment

Equipment malfunctions due to failing valves in section **Security Valves (Slam Shut Security Valves)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Valves stick open or closed.
- The failing element of the valve causes system pressure to exceed the MAOP.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
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25	0	23	5.86	5.5	1.05	1.015	1.00
No Previous Plan							

Ranked here, in part, for the following reasons:

- The failing element of the valve causes system pressure to exceed the MAOP.
- The likelihood that a failure of this equipment will become a Grade 1 leak is high.
- The likelihood of this valve failing is low.
- The impact on the utility and its customers if this equipment were to fail would be moderate.

Additional/Accelerated Action(s)

For **equipment malfunctions due to failing valves** on the **Security Valves** section, PEOPLES GAS will:

- repair problem equipment and/or change settings.

PEOPLES GAS will implement as follows:

Already Implemented: See PGL O&M Plan Exhibit XII: Gas Operations Manual, Chapter 3.

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented: See PGL O&M Plan Exhibit XII: Gas Operations Manual, Chapter 3.

Performance Measure(s)

For **equipment malfunctions due to failing valves** on the **Security Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record, and inspection results are saved by Gas Operations Department.

z. Section: Other Metal portion of PEOPLES GAS

Threat: Corrosion -> External Corrosion

Description: Entire System

Threat Assessment

External corrosion on other metal was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Exposed pipe inspections indicate a corrosion problem.
- Confirmed corrosion leaks have occurred on this section.
- Pipe is not cathodically protected.
- Corrosion is occurring due to dissimilar metals.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
26	0	24	5.74	5.2	1	1.104	1.00
Previous Plan							
26	17	35	6.33	5.2	1	1.218	1.00
	Explanation: Rank similar to Zoomerang survey for Corrosion Other						

Ranked here, in part, for the following reasons:

- Pipe is not cathodically protected.
- Corrosion is occurring due to dissimilar metals.
- Confirmed corrosion leaks have occurred on this section.
- Exposed pipe inspections indicate a corrosion problem.

Additional/Accelerated Action(s)

For **external corrosion on other metal** on the **Other Metal** section, PEOPLES GAS will:

- Accelerated Main Replacement Program to renew copper services with modern materials (CP Steel/HDPE Plastic)

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

Performance Measure(s)

For **external corrosion on other metal** on the **Other Metal** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Other Metal.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks and their related material type are recorded in system of record.

aa. **Section: Known Material** portion of PEOPLES GAS

Threat: Material, Weld or Joint Failure -> Known Materials

Description: Compression Couplings for PE Pipe

Threat Assessment

Material, weld or joint due to known problem materials was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Failures in this section occur more than once per year.
- Failures Occur more frequently than the scheduled leak survey intervals.
- Materials with known problems are in use.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
27	0	25	5.58	5.5	1	1.015	1.00
Previous Plan							
27	48	48	3.43	3.25	1.05	1.005	1.00
	Explanation: Use default SHRIMP rank						

Ranked here, in part, for the following reasons:

- Failures in this section occur more than once per year.

Additional/Accelerated Action(s)

For **material, weld or joint due to known problem materials** on the **Known Material** section, PEOPLES GAS will:

- revise construction procedures.

PEOPLES GAS will implement as follows:

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Already Implemented. Per SME William Good, Supervisory Engineer, Standards Group. Electrofusion is the preferred method of joining plastic pipe.

- revise materials specifications.

PEOPLES GAS will implement as follows:

Already Implemented. Per SME William Good, Supervisory Engineer, Standards Group. Electrofusion is the preferred method of joining plastic pipe.

Performance Measure(s)

For **material, weld or joint due to known problem materials** on the **Known Material** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, PGL sends any in-service mechanical fitting failure to Technical Training for analysis and entry into the electronic database maintained by the designated engineer within the Compliance Group.

ab. **Section: Remote Oper Valves** portion of Failing Equipment portion of PEOPLES GAS

Threat: Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

Description: All Remote Op Valves

Threat Assessment

Equipment malfunctions due to failing valves in section **Remote Oper Valves (All Remote Op Valves)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- The problem with these valves does result in gas leaking outside of the pipeline.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The size/capacity of the equipment is substantially greater than other equipment in the system as a whole.
- The equipment is primarily within business districts.
- The impact on the utility and its customers if this equipment were to fail would be high.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
28	0	26	4.78	3.25	1.45	1.015	1.00
Previous Plan							
28	53	50	1.5	1	1.45	1.033	1.00
	Explanation: likelihood of failure is low						

Ranked here, in part, for the following reasons:

- The likelihood of this valve failing is low.
- The likelihood that a failure of this equipment will become a Grade 1 leak is high.
- The size/capacity of the equipment is substantially greater than other equipment in the system as a whole.
- The equipment is primarily within business districts.

Additional/Accelerated Action(s)

For **equipment malfunctions due to failing valves** on the **Remote Oper Valves** section, PEOPLES GAS will:

- repair problem equipment and/or change settings.

PEOPLES GAS will implement as follows:

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Already Implemented per SME Alonzo Foster - Supervisory Engineer Gas Operations. See PGL O&M PPlan Exhibit XII - Gas Operations Manual.

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented per SME Alonzo Foster - Supervisory Engineer Gas Operations. See PGL O&M PPlan Exhibit XII - Gas Operations Manual.

Performance Measure(s)

For **equipment malfunctions due to failing valves** on the **Remote Oper Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented per SME Alonzo Foster - Supervisory Engineer Gas Operations. See PGL O&M PPlan Exhibit XII - Gas Operations Manual. Leaks are recorded in system of record, and inspection results are saved by Gas Operations Department.

ac. **Section: Cathodic Protected, Coated Steel** portion of PEOPLES GAS

Threat: Corrosion -> External Corrosion

Description: Entire System

Threat Assessment

External corrosion on coated, cathodically protected, steel mains and services was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Repaired leaks per mile of mains are increasing.
- Confirmed corrosion leaks have occurred on this section.
- Cathodic protection test point readings that meet or exceed acceptable cathodic protection criteria; at least 75% of readings exceed -.85 v.
- Stray currents are creating problems.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
29	0	27	4.32	3.4	1.15	1.104	1.00
Previous Plan							
29	0	57	0	0	1	1.218	1.00

Ranked here, in part, for the following reasons:

- Repaired leaks per mile of mains are increasing.
- Cathodic protection test point readings that meet or exceed acceptable cathodic protection criteria; at least 75% of readings exceed -.85 v.
- Stray currents are creating problems.
- Confirmed corrosion leaks have occurred on this section.

Additional/Accelerated Action(s)

For **external corrosion on coated, cathodically protected, steel mains and services** on the **Cathodic Protected, Coated Steel** section, PEOPLES GAS will:

- correct cathodic protection deficiencies by locating and eliminating shorts (including shorted casings) in this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- install additional test stations and evaluate in this portion of the distribution system

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- correct cathodic protection deficiencies by repairing or replacing or adding a rectifier or groundbed to the existing cathodic protection system in this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- correct cathodic protection deficiencies by replacing anode beds or add anodes section-wide in this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- correct cathodic protection deficiencies by installing supplemental anodes in problem areas in this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- correct cathodic protection deficiencies by mitigating interference problems in problem areas in this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- correct cathodic protection deficiencies by isolating CP systems and reevaluating problems in this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- correct cathodic protection deficiencies by bonding CP systems together and reevaluating problems in this portion of the distribution system.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- For insulated corrosion protected services, remediation threshold has been increased from -.85V to -.95V.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X.

- Perform any required remediation on CP steel facilities within 12 months, instead of the 15 mandated by regulation.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit X: Corrosion Control Policy.

- Monitor Rectifier Status, Voltage, and Current Outputs every eight days, instead of two months as required by regulations.

PEOPLES GAS will implement as follows:

Already Implemented. Rectifiers are equipped with remote monitoring units that store reads every two days, and upload them every 8 days.

For **external corrosion on coated, cathodically protected, steel mains and services** on the **Cathodic Protected, Coated Steel** section, PEOPLES GAS will:

- track the number of leaks caused by external corrosion per mile of main and per 1000 service lines on the Cathodic Protected, Coated Steel.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks and their related material type are recorded in system of record.

ad. **Section: Network Valves** portion of Failing Equipment portion of PEOPLES GAS

Threat: Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

Description: All Network Valves

Threat Assessment

Equipment malfunctions due to failing valves in section **Network Valves (All Network Valves)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Valves stick open or closed.
- Malfunctioning of these valve(s) is due to failing seals, gaskets, o-rings, packing, etc.
- The problem with these valves does result in gas leaking outside of the pipeline.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The equipment is primarily within business districts.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
30	0	28	3.79	3.25	1.15	1.015	1.00
Previous Plan							
30	52	51	1.34	1	1.3	1.033	1.00
	Explanation: likelihood of failure is low						

Ranked here, in part, for the following reasons:

- The likelihood of this valve failing is low.
- The likelihood that a failure of this equipment will become a Grade 1 leak is high.
- The equipment is primarily within business districts.

Additional/Accelerated Action(s)

For **equipment malfunctions due to failing valves** on the **Network Valves** section, PEOPLES GAS will:

- repair problem equipment and/or change settings.

PEOPLES GAS will implement as follows:

Already Implemented: Valve inspections indicating failure are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit XII: Gas Operations Manual and Exhibit I: Distribution Manual General Order .600.

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented: Valve inspections indicating failure are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit XII: Gas Operations Manual and Exhibit I: Distribution Manual General Order .600.

Performance Measure(s)

For **equipment malfunctions due to failing valves** on the **Network Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, valve inspections indicating failure are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit XII: Gas Operations Manual.

ae. **Section: Other Outside Force Damage - Crossbores** portion of PEOPLES GAS

Threat: Other Threats -> Other

Description: Gas Pipe Bored Through Sewer Lateral

Threat Assessment

Other threats in section **Other Outside Force Damage - Crossbores (Gas Pipe Bored Through Sewer Lateral)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
31	31	35	0	0	1	1.463	1.00
Explanation: Ranked 3 of 11 Manually Entered Threats. Relative Risk Score of 3.35.							
Previous Plan							
31	30	57	0	0	1	1.265	1.00
Explanation: frequency of failure is very low, procedures in place to check if bored through sewer line.							

Ranked here, in part, for the following reasons:

- Operator overrode ranking with this explanation:

Ranked 3 of 11 Manually Entered Threats. Relative Risk Score of 3.35.

Additional/Accelerated Action(s)

For **other threats** on the **Other Outside Force Damage - Crossbores** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

PEOPLES GAS will implement as follows:

Already Implemented: System Integrity Engineer assigned to the Crossbore Inspection Program records all required inspections and found crossbores. See Appendix H - Mandatory Metrics and Performance Measures.

- Pre and Post camera work for main installations using any trenchless technologies. Daylighting all crossings. Public outreach program to notify plumbers and homeowners of danger of rodding clogged sewers.

PEOPLES GAS will implement as follows:

Already Implemented: See Section 920: Operations and Maintenance manual: Damage Prevention Trenchless Technologies, General Order .801: Procedure and Policies for Addressing Legacy Sewer Crossbores, and PGL Administrative Directive FC 4.0: Use of Post Camera Technology to Document Directional Drill Path of Main.

Performance Measure(s)

For **other threats** on the **Other Outside Force Damage - Crossbores** section, PEOPLES GAS will:

- Track the number of Crossbore Inspections completed and Crossbores found per year.

PEOPLES GAS will implement as follows:

Already Implemented: System Integrity Engineer assigned to the Crossbore Inspection Program records all required inspections and found crossbores. See Appendix H - Mandatory Metrics and Performance Measures.

af. **Section: Gas Operations Distribution Valves** portion of Failing Equipment portion of PEOPLES GAS

Threat: Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

Description: Distribution Valves Located Inside Valve Basins

Threat Assessment

Equipment malfunctions due to failing valves in section **Gas Operations Distribution Valves (Distribution Valves Located Inside Valve Basins)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Valves stick open or closed.
- Malfunctioning of these valve(s) is due to failing seals, gaskets, o-rings, packing, etc.
- The problem with these valves does result in gas leaking outside of the pipeline.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
32	32	29	3.3	3.25	1	1.015	1.00
	Explanation:	Per SME group meeting, ranked one threat higher due to valves inside basins are generally 4" and larger.					
No Previous Plan							

Ranked here, in part, for the following reasons:

- The likelihood that a failure of this equipment will become a Grade 1 leak is high.
- The likelihood of this valve failing is low.
- Operator overrode ranking with this explanation:

Per SME group meeting, ranked one threat higher due to valves inside basins are generally 4" and larger.

Additional/Accelerated Action(s)

For **equipment malfunctions due to failing valves** on the **Gas Operations Distribution Valves** section, PEOPLES GAS will:

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented: Valve inspections indicating failure are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit I: Distribution Manual General Order .600.

Performance Measure(s)

For **equipment malfunctions due to failing valves** on the **Gas Operations Distribution Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, valve inspections indicating failure are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit XII: Gas Operations Manual.

ag. **Section: Kerotest Valve** portion of Failing Equipment portion of PEOPLES GAS

Threat: Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

Description: Kerotest Valve (Kerotest, Prior to Mid 1980's)

Threat Assessment

Equipment malfunctions due to failing valves in section **Kerotest Valve (Kerotest, Prior to Mid 1980's)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Malfunctioning of these valve(s) is due to failing seals, gaskets, o-rings, packing, etc.
- The problem with these valves does result in gas leaking outside of the pipeline.
- Leaking problem valves are not obtaining adequate shut off.
- The likelihood of this valve failing is medium.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
33	33	29	3.3	3.25	1	1.015	1.00
	Explanation:	Ranked on threat lower due to 2" Kerotest Valve threat being ranked one higher.					
Previous Plan							
33	45	53	1.03	1	1	1.033	1.00
	Explanation:	Ranked similar to Zoomerang survey rank					

Ranked here, in part, for the following reasons:

- The likelihood of this valve failing is medium.
- Operator overrode ranking with this explanation:

Ranked on threat lower due to 2" Kerotest Valve threat being ranked one higher.

Additional/Accelerated Action(s)

For **equipment malfunctions due to failing valves** on the **Kerotest Valve** section, PEOPLES GAS will:

- repair problem equipment and/or change settings.

PEOPLES GAS will implement as follows:

Already Implemented: Valve inspections indicating failure are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit I: Distribution Manual General Order .600.

Performance Measure(s)

For **equipment malfunctions due to failing valves** on the **Kerotest Valve** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in the system of record. Any non-accessible valves are issued remediation work and followup inspections. See General Order .600: Procedure for the Inspection of Critical Distribution Valves and Valve Follow-up Work.

ah. **Section: Excavation Damage - Critical Facilities** portion of PEOPLES GAS

Threat: Other Threats -> Other

Description: Excavation near HP Pipelines, >=16" MP Pipelines, Vaults, Remote Operated Valves, and Current Rectifiers

Threat Assessment

Other threats in section **Excavation Damage - Critical Facilities (Excavation near HP Pipelines, >=16" MP Pipelines, Vaults,**

Remote Operated Valves, and Current Rectifiers) was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
34	34	35	0	0	1	1.463	1.00
Explanation: Ranked 4 of 11 Manually Entered Threats. Relative Risk Score of 2.07.							
No Previous Plan							

Ranked here, in part, for the following reasons:

- Operator overrode ranking with this explanation:

Ranked 4 of 11 Manually Entered Threats. Relative Risk Score of 2.07.

Additional/Accelerated Action(s)

For **other threats** on the **Excavation Damage - Critical Facilities** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

PEOPLES GAS will implement as follows:

Already Implemented - All leaks are recorded in the system of record. Additionally, all damages to company property is recorded in the PGL Hit Database managed by System Integrity Group.

- All excavation activities near an identified critical facility are monitored on-site by company personnel, from initial excavation through final backfill. A daily email is generated by System Integrity Engineers detailing each critical excavation site, including the location, excavator, Dig #, Type of Work, and Facility Type and Size. Shut Down and Contingency Plans are developed for each proposed critical excavation in the event the facility is damaged. All boring near critical facilities is monitored.

PEOPLES GAS will implement as follows:

Already Implemented - See PGL O&M Plan Exhibit IX: Damage Prevention Program and Exhibit I- Distribution Manual General Order .800, Section E: Proposed Excavations Near Critical Facilities.

Performance Measure(s)

For **other threats** on the **Excavation Damage - Critical Facilities** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - All leaks are recorded in the system of record. Additionally, all damages to company property is recorded in the PGL Hit Database managed by System Integrity Group.

ai. **Section: Incorrect Operations - Non-Approved Material** portion of PEOPLES GAS

Threat: Other Threats -> Other

Description: Installation of Non-Approved Materials

Threat Assessment

Other threats in section **Incorrect Operations - Non-Approved Material (Installation of Non-Approved Materials)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
35	35	35	0	0	1	1.463	1.00
Explanation: Ranked 5 of 11 Manually Entered Threats. Relative Risk Score of 1.64.							
Previous Plan							
35	10	57	0	0	1	1.265	1.00
Explanation: number of services that have leaked is high compared with other, modern materials.							

Ranked here, in part, for the following reasons:

- Operator overrode ranking with this explanation:

Ranked 5 of 11 Manually Entered Threats. Relative Risk Score of 1.64.

Additional/Accelerated Action(s)

For **other threats** on the **Incorrect Operations - Non-Approved Material** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

PEOPLES GAS will implement as follows:

As a result of the threat of unauthorized materials being installed, the Standards Group was developed in order to track and manage the types of materials that are approved for use.

Performance Measure(s)

For **other threats** on the **Incorrect Operations - Non-Approved Material** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented: The Standards Group was developed in order to align company approved materials with work practices and standards.

aj. **Section: Excavation Damage - Inactive Services** portion of PEOPLES GAS

Threat: Other Threats -> Other

Description: Service Pipes Designated as Inactive

Threat Assessment

Other threats in section **Excavation Damage - Inactive Services (Service Pipes Designated as Inactive)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
36	36	35	0	0	1	1.463	1.00
Explanation: Ranked 6 of the 11 Manually Entered Threats. Relative Risk Score of 1.59							
No Previous Plan							

Ranked here, in part, for the following reasons:

- Operator override ranking with this explanation:

Ranked 6 of the 11 Manually Entered Threats. Relative Risk Score of 1.59

Additional/Accelerated Action(s)

For **other threats** on the **Excavation Damage - Inactive Services** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record and tracked in Appendix H - Mandatory Metrics and Performance Measures

- Physical disconnects: 200 planned for 2015 and 250 planned for 2016. Alignment with AMRP retirements has also been considered. TEG Standard 1050 - Facility Deactivation and Abandonment was also established.

PEOPLES GAS will implement as follows:

Already Implemented in TEG 1050 detailed above.

Performance Measure(s)

For **other threats** on the **Excavation Damage - Inactive Services** section, PEOPLES GAS will:

- Record the number of inactive services (over 3 years) that are cut off from their supply of gas and retired.

PEOPLES GAS will implement as follows:

Already Implemented: Distribution Planning Engineer records the number of inactive services over 3 and 10 years, as well as the number retired and cut-off. See Appendix H - Mandatory Metrics and Performance Measures.

ak. **Section: Meters/Shutoffs Inaccessible** portion of PEOPLES GAS

Threat: Other Threats -> Other

Description: No Access to Meter or Shutoff

Threat Assessment

Other threats in section **Meters/Shutoffs Inaccessible (No Access to Meter or Shutoff)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
37	37	35	0	0	1	1.463	1.00
	Explanation:	Ranked 7 of the 11 Manually Entered Threats. Relative Risk Score of 1.47.					
Previous Plan							
37	26	57	0	0	1	1.265	1.00
	Explanation:	potential consequence is high but ongoing Inside Safety Inspections, meter readings, upgrade of services, leak surveys, etc mitigate this threat.					

Ranked here, in part, for the following reasons:

- Operator override ranking with this explanation:

Ranked 7 of the 11 Manually Entered Threats. Relative Risk Score of 1.47.

Additional/Accelerated Action(s)

For **other threats** on the **Meters/Shutoffs Inaccessible** section, PEOPLES GAS will:

- Accelerated Main Replacement Program to address inside meters. All inside meters to be moved outside when service is renewed. Any meters left inside require manager authorization.

PEOPLES GAS will implement as follows:

Already Implemented - See meter location totals in Appendix H - Mandatory Metrics and Performance Measures

Performance Measure(s)

For **other threats** on the **Meters/Shutoffs Inaccessible** section, PEOPLES GAS will:

- Record the number of inside and outside meters.

PEOPLES GAS will implement as follows:

Already Implemented - Field Service Planning Engineer tracks the total number of meters and how many are located inside of the building as part of the Inside Safety Inspection Program. See Appendix H - Mandatory Metrics and Performance Measures.

al. **Section: Other - Soft Closed Accounts** portion of PEOPLES GAS

Threat: Other Threats -> Other

Description: Supply to Vacant Property Remaining Active

Threat Assessment

Other threats in section **Other - Soft Closed Accounts (Supply to Vacant Property Remaining Active)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
38	38	35	0	0	1	1.463	1.00
Explanation: Ranked 8 of 11 Manually Entered Threats. Relative Risk Score of 1.47.							
No Previous Plan							

Ranked here, in part, for the following reasons:

- Operator overrode ranking with this explanation:

Ranked 8 of 11 Manually Entered Threats. Relative Risk Score of 1.47.

Additional/Accelerated Action(s)

For **other threats** on the **Other - Soft Closed Accounts** section, PEOPLES GAS will:

- Develop procedure/directive to address soft closed accounts. Disconnect any soft closed account that has a pending ISI.

PEOPLES GAS will implement as follows:

Procedure to be developed by Compliance group in conjunction with Operations. Disconnects already implemented.

Performance Measure(s)

For **other threats** on the **Other - Soft Closed Accounts** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Leaks are recorded in the system of record. Per Compliance Group, a process will be in development in order to address soft closed accounts.

am. **Section: Incorrect Operations - Improper Odorization** portion of PEOPLES GAS

Threat: Other Threats -> Other

Description: Too Little or Much Mercaptin

Threat Assessment

Other threats in section **Incorrect Operations - Improper Odorization (Too Little or Much Mercaptin)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
39	39	35	0	0	1	1.463	1.00
Explanation: Ranked 9 of 11 Manually Entered Threats. Relative Risk Score of 1.38.							
Previous Plan							
39	43	57	0	0	1	1.265	1.00
Explanation: Consequence of failure is potentially high, but excellent monitoring mitigates this threat							

Ranked here, in part, for the following reasons:

- Operator override ranking with this explanation:

Ranked 9 of 11 Manually Entered Threats. Relative Risk Score of 1.38.

Additional/Accelerated Action(s)

For **other threats** on the **Incorrect Operations - Improper Odorization** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

PEOPLES GAS will implement as follows:

Already Implemented: Inspections are performed weekly at survey sites throughout PGL's Distribution System, and monthly through gas chromatography at Technical Training. Records of weekly and monthly odorant testing are maintained at District Shop Locations and by Gas Control. See PGL O&M Plan Exhibit III: Gas Control and Odorization.

Performance Measure(s)

For **other threats** on the **Incorrect Operations - Improper Odorization** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented: Inspections are performed weekly at survey sites throughout PGL's Distribution System, and monthly through gas chromatography at Technical Training. Records of weekly and monthly odorant testing are maintained at District Shop Locations and by Gas Control. See PGL O&M Plan Exhibit III: Gas Control and Odorization.

an. **Section: Corrosion - Cased Pipelines** portion of PEOPLES GAS

Threat: Other Threats -> Other

Description: Cathodic Protected Steel Pipelines inside Metallic Casings

Threat Assessment

Other threats in section **Corrosion - Cased Pipelines (Cathodic Protected Steel Pipelines inside Metallic Casings)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
40	40	35	0	0	1	1.463	1.00
Explanation: Ranked 10 of 11 Manually Entered Threats. Relative Risk Score of 1.27.							
Previous Plan							
40	49	57	0	0	1	1.265	1.00
Explanation: The frequency and consequence of this threat are very low.							

Ranked here, in part, for the following reasons:

- Operator overrode ranking with this explanation:

Ranked 10 of 11 Manually Entered Threats. Relative Risk Score of 1.27.

Additional/Accelerated Action(s)

For **other threats** on the **Corrosion - Cased Pipelines** section, PEOPLES GAS will:

- Monitor or Trend these Failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, casing and carrier reads are recorded by Corrosion Control Group Engineer responsible for the Casing Inspection project.

- All known casings are inspected annually. Casings requiring remediation are given to Engineering design and receive high importance due to the relative difficulty in repairs. Bi-Weekly status meetings between Corrosion Group and Engineering Design on pending casing remediation projects.

PEOPLES GAS will implement as follows:

Already Implemented - Also See Corrosion Control Orders 8.210: Carrier Casing Corrosion Inspection and 8.220: ACVG Survey for Testing Carrier-Casing Isolation

Performance Measure(s)

For **other threats** on the **Corrosion - Cased Pipelines** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, casing and carrier reads are recorded by Corrosion Control Group Engineer responsible for the Casing Inspection project.

ao. **Section: Distribution Valves** portion of Failing Equipment portion of PEOPLES GAS

Threat: Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

Description: Distribution Valves Not Located in Basins

Threat Assessment

Equipment malfunctions due to failing valves in section **Distribution Valves (Distribution Valves Not Located in Basins)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice

because:

- Valves stick open or closed.
- Malfunctioning of these valve(s) is due to failing seals, gaskets, o-rings, packing, etc.
- The problem with these valves does result in gas leaking outside of the pipeline.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
41	41	33	1.02	1	1	1.015	1.00
	Explanation:						
Previous Plan							
41	51	53	1.03	1	1	1.033	1.00
	Explanation:	likelihood of failure is low					

Ranked here, in part, for the following reasons:

- The likelihood of this valve failing is low.
- Operator overrode ranking with this explanation:

Additional/Accelerated Action(s)

For **equipment malfunctions due to failing valves** on the **Distribution Valves** section, PEOPLES GAS will:

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented: Valve inspections indicating failure are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit I: Distribution Manual General Order .600.

Performance Measure(s)

For **equipment malfunctions due to failing valves** on the **Distribution Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Additionally, valve inspections indicating failure are issued remediation work and follow-up inspections. See PGL O&M Plan Exhibit IV: Safety Inspection Program and Exhibit I (Distribution Manual, General Order 0.600)

ap. **Section: Service Valves** portion of Failing Equipment portion of PEOPLES GAS

Threat: Equipment Malfunction -> Valves Experiencing Failure -> Specific Valves Experiencing Failure

Description: All Service Valves

Threat Assessment

Equipment malfunctions due to failing valves in section **Service Valves (All Service Valves)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Valves stick open or closed.
- Malfunctioning of these valve(s) is due to failing seals, gaskets, o-rings, packing, etc.
- The problem with these valves does result in gas leaking outside of the pipeline.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
42	42	33	1.02	1	1	1.015	1.00
	Explanation: likelihood of failure is low						
Previous Plan							
42	50	53	1.03	1	1	1.033	1.00
	Explanation: likelihood of failure is low						

Ranked here, in part, for the following reasons:

- The likelihood of this valve failing is low.
- Operator overrode ranking with this explanation:
likelihood of failure is low

Additional/Accelerated Action(s)

For **equipment malfunctions due to failing valves** on the **Service Valves** section, PEOPLES GAS will:

- repair or replace problem materials.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Inoperable service valves are brought to the attention of the Distribution Department for repair or service pipe renewal.

- Accelerated Main Replacement Program - All new service line installations require an excess flow valve, and in almost all instances, the meter and shutoff is installed on the outside of the building, thereby eliminating the need for a buried valve.

PEOPLES GAS will implement as follows:

Already Implemented - See retirement totals in Appendix H - Mandatory Metrics and Performance Measures

Performance Measure(s)

For **equipment malfunctions due to failing valves** on the **Service Valves** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented - Leaks are recorded in system of record. Inoperable service valves are brought to the attention of the Distribution Department for repair or service pipe renewal.

aq. **Section: Other Outside Force - Occupant Use** portion of PEOPLES GAS

Threat: Other Threats -> Other

Description: Unauthorized Turn-on By Customer

Threat Assessment

Other threats in section **Other Outside Force - Occupant Use (Unauthorized Turn-on By Customer)** was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- This section has experienced failures or other safety problems due to causes that were not addressed during the evaluation of the other seven threats.

The possible consequences of a failure of this portion due to the indicated threat are:

- The consequences of this threat are reflected in the ranking PEOPLES GAS applies to this threat.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
43	43	35	0	0	1	1.463	1.00

Explanation:	Ranked 11 of 11 Manually Entered Threats. Relative Risk Score of 1.01	
No Previous Plan		

Ranked here, in part, for the following reasons:

- Operator override ranking with this explanation:

Ranked 11 of 11 Manually Entered Threats. Relative Risk Score of 1.01

Additional/Accelerated Action(s)

For **other threats** on the **Other Outside Force - Occupant Use** section, PEOPLES GAS will:

- Any accounts that are currently inactive but showing usage are immediately ordered an additional disconnect request. If the meter is outside, or if there no active accounts at the premise, the disconnect order is completed within 5 days. Otherwise, the order is completed within 30 days, and all affected customers are notified of the pending disconnect. Consecutive Occupant Use Disconnect orders for the same address are issued a Distribution Cut-off (a physical disconnection from gas service.)

PEOPLES GAS will implement as follows:

Already Implemented per SME Brian Martinkus, Engineer Special Projects

Performance Measure(s)

For **other threats** on the **Other Outside Force - Occupant Use** section, PEOPLES GAS will:

- track the frequency of these failures.

PEOPLES GAS will implement as follows:

Already Implemented: All previously known Occupant Use Orders were completed. Any accounts that are currently inactive but showing usage are immediately ordered an additional disconnect request. If the meter is outside, or if there no active accounts at the premise, the disconnect order is completed within 5 days. Otherwise, the order is completed within 30 days, and all affected customers are notified of the pending disconnect. Consecutive Occupant Use Disconnect orders for the same address are issued a Distribution Cut-off (a physical disconnection from gas service.)

ar. **Section: PEOPLES GAS** portion of PEOPLES GAS

Threat: Corrosion -> Internal Corrosion

Description: Entire System

Threat Assessment

Internal corrosion was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Liquids have been found in PEOPLES GAS piping.
- Liquids found in your PEOPLES GAS piping are acidic or corrosive.

The possible consequences of a failure of this portion due to the indicated threat would be about the same as for the PEOPLES GAS system in general.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
44	44	31	3.16	2.86	1	1.104	1.00
	Explanation:	Per SME Group meeting, ranked 44 of 45. Threat generally only concerns the infiltration of water on Low Pressure mains and does not pose a specific corrosion threat.					
Previous Plan							
44	48	45	4.01	2.86	1.15	1.218	1.00
	Explanation:	No documented leaks due to internal corrosion					

Ranked here, in part, for the following reasons:

- Liquids found in your PEOPLES GAS piping are acidic or corrosive.

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- Liquids have been found in PEOPLES GAS piping.
- Operator override ranking with this explanation:

Per SME Group meeting, ranked 44 of 45. Threat generally only concerns the infiltration of water on Low Pressure mains and does not pose a specific corrosion threat.

as. **Section: Failing Equipment** portion of PEOPLES GAS

Threat: Equipment Malfunction -> Other Equipment Experiencing Failure

Description: Heaters

Threat Assessment

Equipment malfunctions due to failing other equipment was determined to be a threat warranting further consideration for additional action beyond code compliance or current system practice because:

- Operator did not identify specific makes/models/sizes of failing equipment.
- The equipment failure occurs because of electric power failure or lightning damage.

The possible consequences of a failure of this portion due to the indicated threat would be higher than for the PEOPLES GAS system in general because:

- The size/capacity of the equipment is substantially greater than other equipment in the system as a whole.
- The equipment is primarily within business districts.

Risk Ranking

Rank	User Rank	SHRIMP Rank	Relative Risk Score	Probability Score	Consequence Score	Leak Cause Factor	Incident Probability Factor
45	45	32	1.37	1	1.35	1.015	1.00
	Explanation:	Per SME group meeting, ranked 45 of 45 threats. Heater failure is extremely rare and inspections are completed frequently.					
No Previous Plan							

Ranked here, in part, for the following reasons:

- The likelihood of this piece of equipment failing is low.
- The size/capacity of the equipment is substantially greater than other equipment in the system as a whole.
- The equipment is primarily within business districts.
- Operator override ranking with this explanation:

Per SME group meeting, ranked 45 of 45 threats. Heater failure is extremely rare and inspections are completed frequently.